

WD34 2004

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Department of Water Resources

State of Idaho

Department of Water Resources

1301 North Orchard Street, P.O. Box 83720, Boise, Idaho 83720-0098

Phone: (208) 327-7900 Fax: (208) 327-7866

February 10, 2004

Anita McAfee
245 East Grand Avenue
P.O. Box 126
Arco, ID 83213

David and Mary Banta
3370 Eighth Drive
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Allan and Roberta Banta
P.O. Box 491
Arco, ID 83213

RE: Measuring Device Installation and Maintenance on Point of Diversion for Water Rights 34-7226B, 34-7226C, 34-7226D

Dear Water Users:

According to Idaho Department of Water Resources (Department) records, groundwater diverted using water rights 34-7226B, 34-7226C, and 34-7226D is injected into the Arco Canal at a point above the measuring device used by the Watermaster in delivery of water to the Arco Canal. The licenses for water right 34-7226A (parent of water rights 34-7226C and 34-7226D) and water right 34-7226B had the following condition:

“.... 6. A measuring device and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works.”

Because water is injected into the Arco Canal above the measuring device used by the Watermaster, a measuring device for your groundwater diversion is necessary to allow the Watermaster to deliver the appropriate amount of water to the Arco Canal. Department staff visited this diversion with the Watermaster on October 23, 2003 and observed that a measuring device was not installed on this well.

The purpose of this letter is to notify you that installation and maintenance of a measuring device acceptable to the Department and the Water District 34 Watermaster is required at the point of

WD 34 2004
Please print for my
signature and mail.
The file path is at
the end of the letter
Thanks,
Jennifer
Sent
2/10/04 - CC

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**RE: Measuring Device Installation and Maintenance on Point of Diversion for Water
Rights 34-7226B, 34-7226C, 34-7226D**

Dear Water Users:

According to Idaho Department of Water Resources (Department) records, groundwater diverted using water rights 34-7226B, 34-7226C, and 34-7226D is injected into the Arco Canal at a point above the measuring device used by the Watermaster in delivery of water to the Arco Canal. The licenses for water right 34-7226A (parent of water rights 34-7226C and 34-7226D) and water right 34-7226B had the following condition:

“.... 6. A measuring device and lockable controlling works of a type acceptable to the Department shall be permanently installed and maintained as part of the diverting works.”

Because water is injected into the Arco Canal above the measuring device used by the Watermaster, a measuring device for your groundwater diversion is necessary to allow the Watermaster to deliver the appropriate amount of water to the Arco Canal. Department staff visited this diversion with the Watermaster on October 23, 2003 and observed that a measuring device was not installed on this well.

The purpose of this letter is to notify you that installation and maintenance of a measuring device acceptable to the Department and the Water District 34 Watermaster is required at the point of diversion for water rights 34-7226B, 34-7226C, and 34-7226D, located in the SW ¼ of the SW ¼ of the SE ¼ of Section 23, Township 4 North, Range 26 East, B.M. The measuring

device must be installed prior to diverting water. If the measuring device is not installed prior to the beginning of the 2004 irrigation season, the Watermaster is authorized to shut off and refuse to deliver water at the point of diversion. If water is diverted without an acceptable measuring device, the Department may issue a Notice of Violation and Cease and Desist Order. Please note that issuance of a Notice of Violation can result in monetary civil penalties pursuant to Section 42-1701B, Idaho Code.

Guidelines regarding minimum standards for an acceptable measuring device are attached. Additional information can be obtained from the Department web site at http://www.idwr.state.id.us/water/districts/water_measurement.htm. The measuring device will be calibrated by Water District 34 or Department staff. The installed measuring device must read within 10% of the standard meter to be considered acceptable.

If you have questions regarding this notice, please contact the Watermaster at 208-588-3137, or contact Jennifer Berkey at 208-327-7871.

Respectfully,

Jennifer Berkey
Water Distribution Section

Enclosure

cc: Darrell McDonald, 2310 W U.S. Hwy 93, Arco, ID 83213
Robert Duke, Watermaster, Water District 34
Big Lost River Irrigation District
IDWR Eastern Region

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**STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES (IDWR)**

**MINIMUM ACCEPTABLE STANDARDS FOR
OPEN CHANNEL AND CLOSED CONDUIT
MEASURING DEVICES**

The source and means of diversion of water, whether surface or ground water, generally determines the measurement and reporting process. Surface water sources such as streams, springs and waste channels are normally diverted into open channels (ditches or canals), but closed conduits (pipes or culverts) are also used. Ground water is usually diverted into pipes (which may also discharge into open channels).

Measuring devices are required at or near the point of diversion from the public water source.

Open Channel

SURFACE WATER DIVERSIONS

I. Flow Measurement

The following discussion is applicable only to diversions from surface water sources. Measurement of a ground water diversion with an open channel measuring device must be pre-approved by the Department.

A. Standard Open Channel Measuring Devices

All open channel flow diversions should be measured using one of the following standard open channel flow measuring devices commonly used in Idaho:

- contracted rectangular weir
- suppressed rectangular weir
- Cipolletti weir
- 90 degree V-notch weir
- ramped broad crested weir (or ramped flume)
- Parshall flume
- trapezoidal flume
- submerged rectangular orifice
- constant head orifice

Construction and installation of these devices should follow published guidelines. References are available upon request.

B. Non-standard open channel devices: Rated Structures or Rated Sections

IDWR may authorize the use of non-standard devices and rated sections provided the device or section is rated or calibrated against a set of flow measurements using an acceptable open channel current meter or a standard portable measuring device. Further restrictions and requirements are available from the Department upon request.

CLOSED CONDUIT MEASURING DEVICES

Closed conduit or pipe line diversions require installation of a flowmeter.

I. Flow Measurement

There are many flowmeters on the market, with costs ranging from several hundred dollars to several thousand dollars. In general, the higher priced meters are more accurate and require less maintenance. Most meters on the market have an acceptable accuracy rating for IDWR's guidelines. However, some types and designs are much more prone to maintenance problems. Moving parts tend to wear when sand or silt is present, and moss often plugs small orifices and slows moving parts. No single flowmeter is best for every situation. We recommend that you visit with qualified dealers and discuss your needs with them.

A. Minimum Standards

The following are minimum standards for closed conduit flowmeters:

- Minimum manufacturers' design accuracy of +/- 2 percent of reading
- Installed accuracy of at least +/- 10 percent of reading
- Meter must be calibrated with an independent, secondary measuring device when installed, and at least once every four years thereafter
- Must read instantaneous flow or be capable of flow rate calculation
- Must record total volume
- Non-volatile memory (power outage does not zero volume reading)
- Sufficient digits to assure "roll-over" to zero does not occur within 2 years
- Volume reading cannot be "reset" to zero
- Installed to manufacturers' specifications

Meter manufacturers typically specify that a meter must be located in a section of straight pipe at least 10 pipe diameters downstream and 5 pipe diameters upstream of any valves, bends, contractions, or other interferences which will distort the flow pattern. However, some types of meters will produce acceptable results when installed in shorter sections of straight pipe. For example, at least one electro-magnetic flowmeter provides excellent measurement accuracy with only 5 lengths of straight pipe upstream from the meter.

Each manufacturer should provide the installation specifications for its meters. These **specifications must be adhered to** in order to achieve the accuracy required for the water measurement program. Again, we stress the importance of visiting with a qualified dealer and discussing your specific needs with them.

B. Types of Measuring Devices for Closed Conduits

Types	Pipe Sizes	Maintenance Required	Relative Purchase Price
Differential Head <ul style="list-style-type: none"> • Orifice • Venturi • Annubar 	small to large	Low to high. Sand wears on sharp edges, and particles can plug small orifices and tubes.	low to medium
Force Velocity <ul style="list-style-type: none"> • Turbine • Propeller • Impeller 	small to large	Typically moderate to high. Often problematic when exposed to sand or moss. Some cannot measure low velocities	low to medium
Ultrasonic	small to large	Low. Typically non-invasive with no moving parts to wear	high
Vortex	small to medium (about 12 to 14 inch maximum pipe diameter)	Low. Few or no moving parts to wear.	high
Electro-Magnetic	small to medium (about 12 to 14 inch maximum pipe diameter)	Low. No moving parts. Can provide good results with shorter lengths of straight pipe.	high

CERTIFICATE OF SERVICE

On February 10, 2004, copies of the Measuring Device Installation and Maintenance on Point of Diversion for Water Rights 34-7226B, 34-7226C, 34-7226D and the Minimum Acceptable Standards for Open Channel and Closed Conduit Measuring Device were mailed to the following:

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Crystal Calais, Administrative Assistant I
Water Distribution Section